

Patent Claims

1. An apparatus for generating surface pressure in a machine which exerts a compressive force on a material during operation of the machine comprising a stationary carrier platen, a clamping platen which can be moved in relation to said carrier platen and locked in a working position, and a closing platen that can be moved electromechanically, wherein the material is disposed between said closing platen and the carrier platen, and further wherein the compressive force of the closing platen is actuated by piezoelectric actuators.
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2. The apparatus according to claim 1, wherein the piezoelectric actuators are distributed in a matrix fashion over the area between clamping platen and closing platen.
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3. The apparatus according to claim 1, wherein the piezoelectric actuators are distributed over the area between clamping platen (AP) and closing platen (SP) in accordance with a desired force distribution.
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4. The apparatus according to claim 1, wherein the piezoelectric actuators are actuated differently over the area between clamping platen and closing platen in accordance with a desired force distribution.
5. The apparatus according to claim 1, wherein the material subjected to the compressive force has a dynamic behavior and the piezoelectric actuators exhibit a
20 matching behavior when triggered.

6. The apparatus according to claim 1, wherein the number of piezoelectric actuators utilized is derived from the closing force of the platen.
7. The apparatus according to claim 1, wherein the closing platen can be locked in at least one intermediate position which constitutes a piezoelectric stroke and
5 from which the clamping platen can subsequently be guided, the latter then being locked and the closing platen being moved out by a further piezoelectric stroke.
8. The apparatus according to claim 1, wherein the piezoelectric actuators have a cube-like geometry.
9. The apparatus according to claim 1, wherein piezoelectric sensors are
10 provided between closing platen and clamping platen.
10. The apparatus according to claim 1, wherein a subset of the piezoelectric actuators can be used as piezoelectric sensors.
11. The apparatus according to claim 1, wherein at least one piezoelectric actuator can be used as piezoelectric sensor.